



# Set-top Box (STB) Framing the Discussion About Utility Program Design

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ENERGY STAR Partner Meeting

# Agenda



- Efficiency programs update
- Market update
- Opportunities, challenges, and next steps

# US STB Efficiency Work to Date



- **ENERGY STAR**

- First STB specification became effective in 2001
- Several partnerships in effect
  - 5 Service Providers
  - 10 STB Manufacturers

- **Energy Efficiency Programs**

- Programs in Market : New Jersey
- Many others investigating including BC Hydro
- Consortium for Energy Efficiency (CEE)
  - STBs are a focus product area for CEE as efficiency programs share insights and research, connect with industry, explore program approaches, participate in ENERGY STAR specification processes, etc.

# ENERGY STAR V3.0 Update



- Updated TEC allowances
- 1.5X purchase requirement multiplier that rewards thin clients and deep sleep
- TEC equation that rewards deep sleep
- Pro-rated purchase requirement

# ENERGY STAR V3.0 Timeline



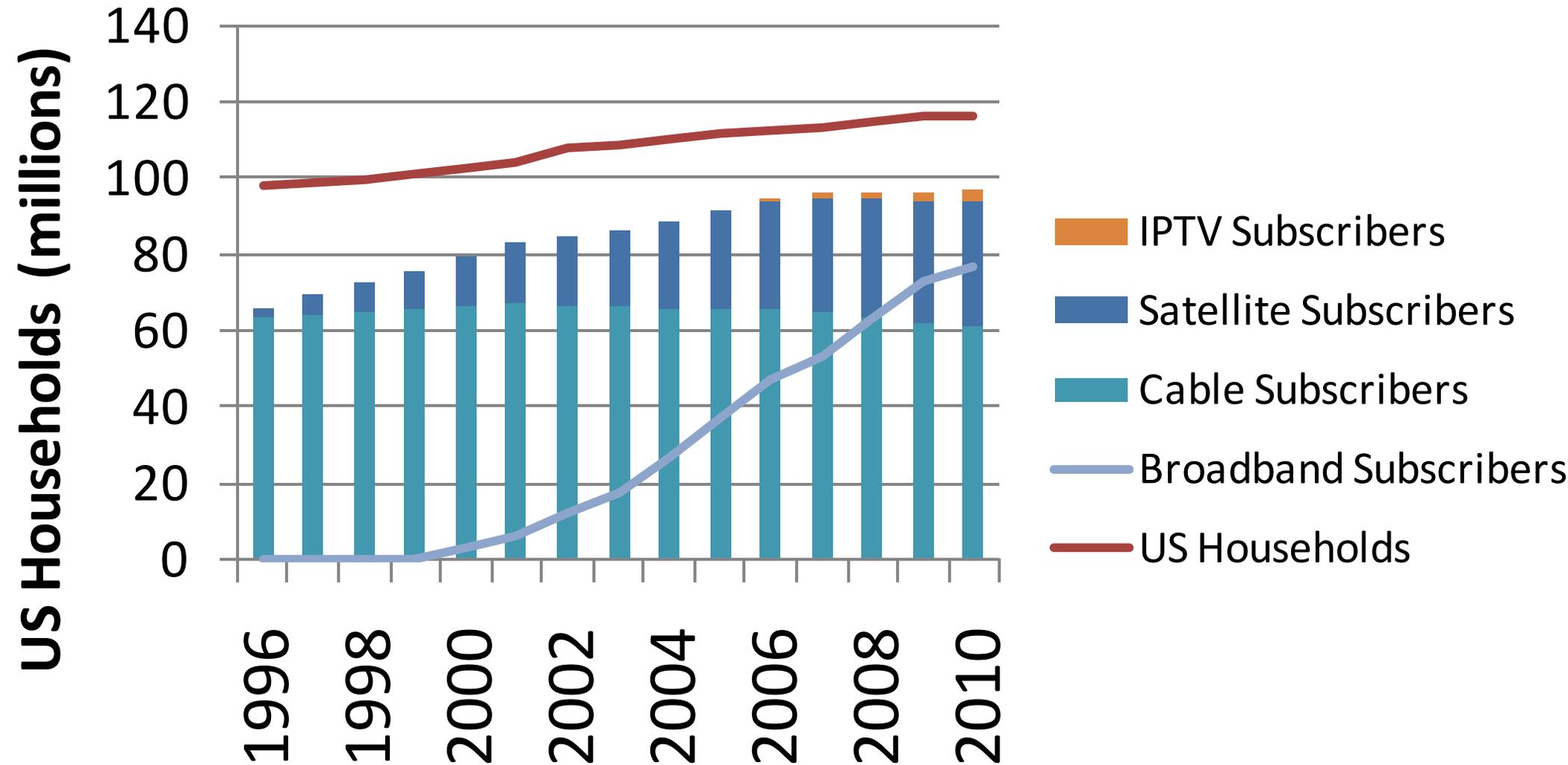
- EPA plans to finalize V3.0 by Dec, 2010
- Effective date will be no earlier than Sep, 2011
- Comments are due Oct 22, 2010

# Key International Developments



- Canada is engaging stakeholders in the development of a STB regulation
  - Will consider voluntary agreement as well
- EU Voluntary Agreement is pending final approval

# Pay TV and Broadband Penetration



Source: NCTA, SBCA, Pew Research

# Top US TV Service Providers



Segment	Service Provider	Subscribers
Cable	Comcast	23.4M
	Time Warner	12.8M
	Cox	5.1M
	Charter	4.8M
	Cable Vision	3.1M
Satellite	DirecTV	18.7M
	Dish Network	14.3M
Telco	Verizon FIOS	3.2M
	AT&T U-verse	2.3M

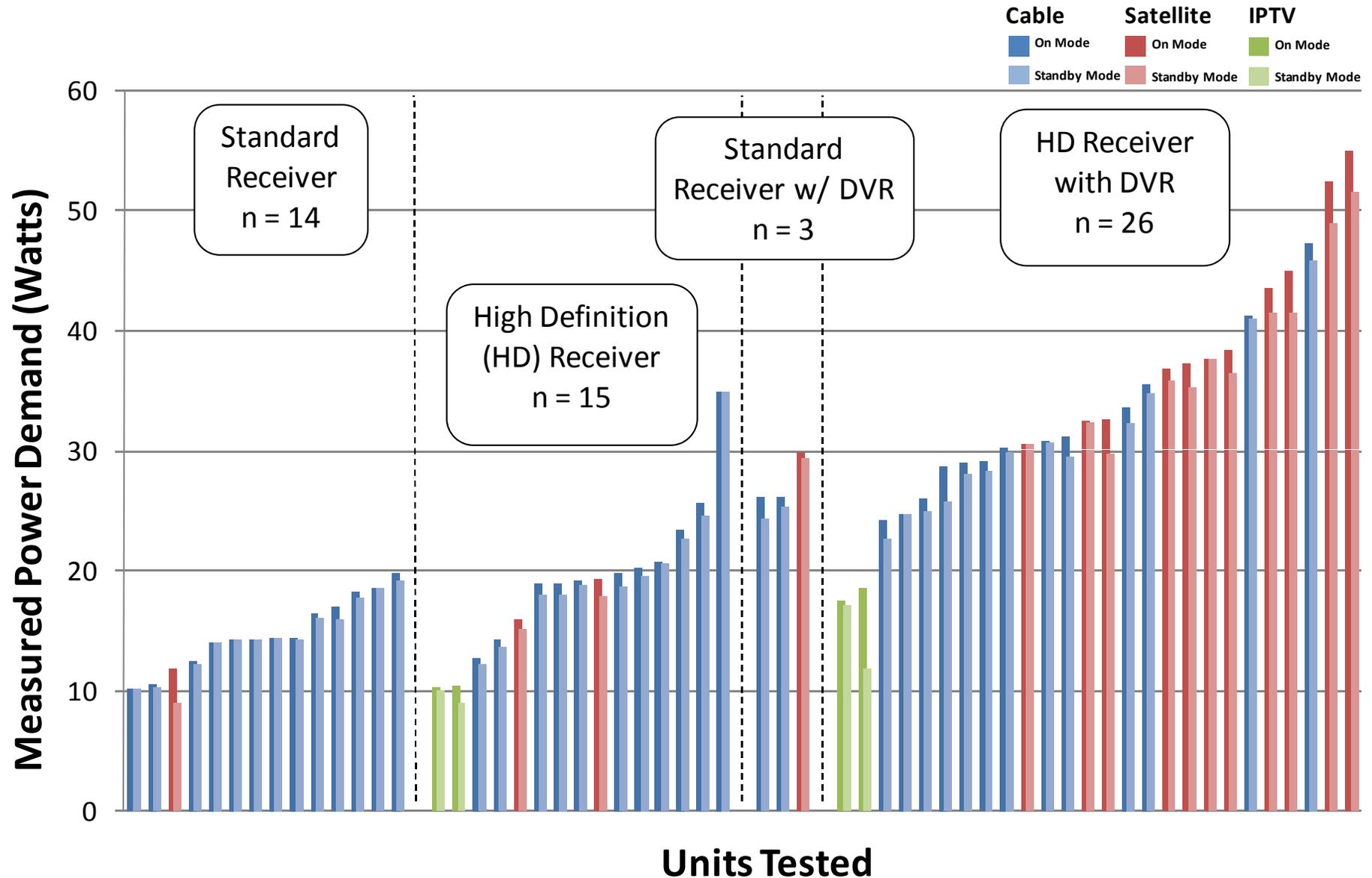


Source: NCTA, SBCA, Bloomberg, and other public data.

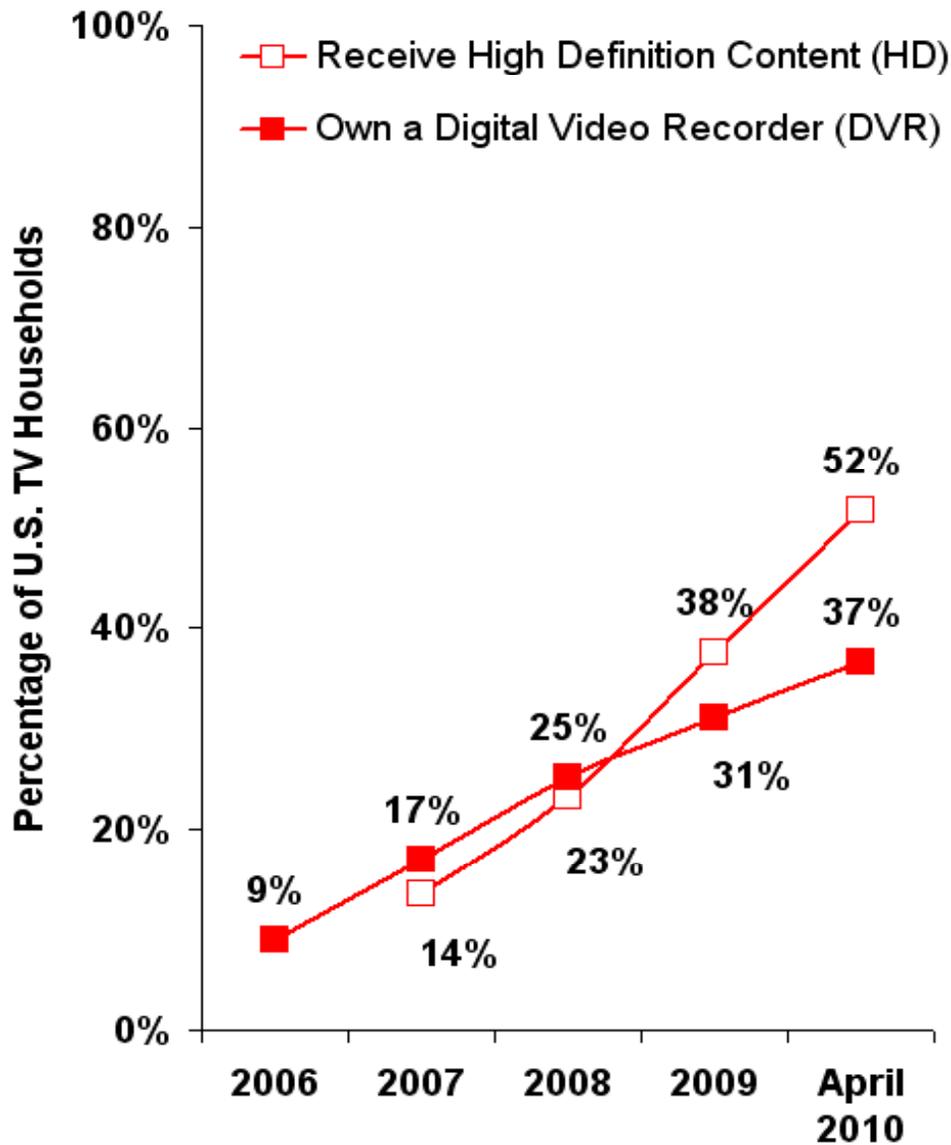
# NRDC 2010 Prelim Test Results



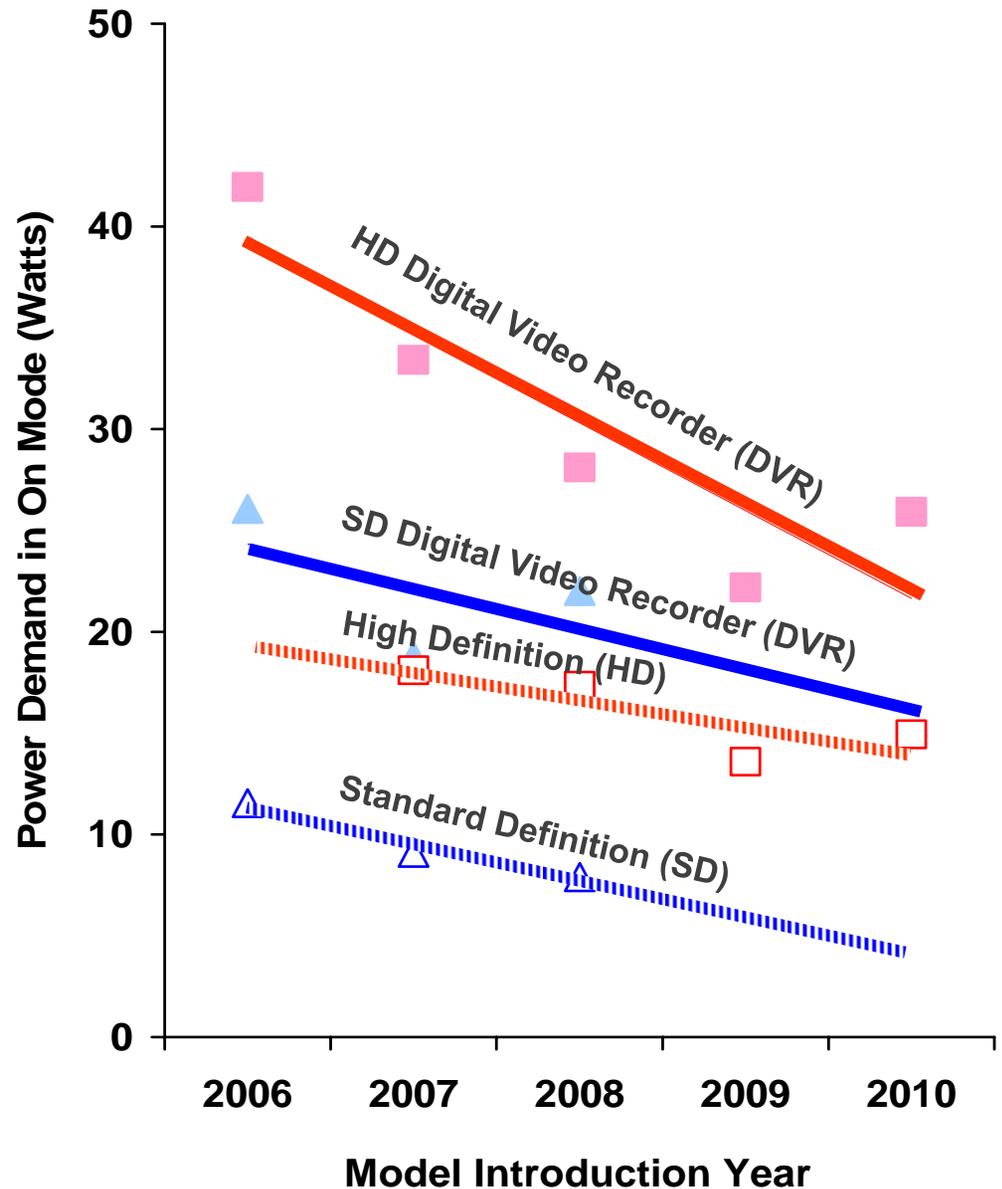
## NRDC'S 2010 SURVEY OF ENERGY CONSUMED BY SET-TOP BOXES



# On Mode Power Reductions Since 2006



Source: Nielsen

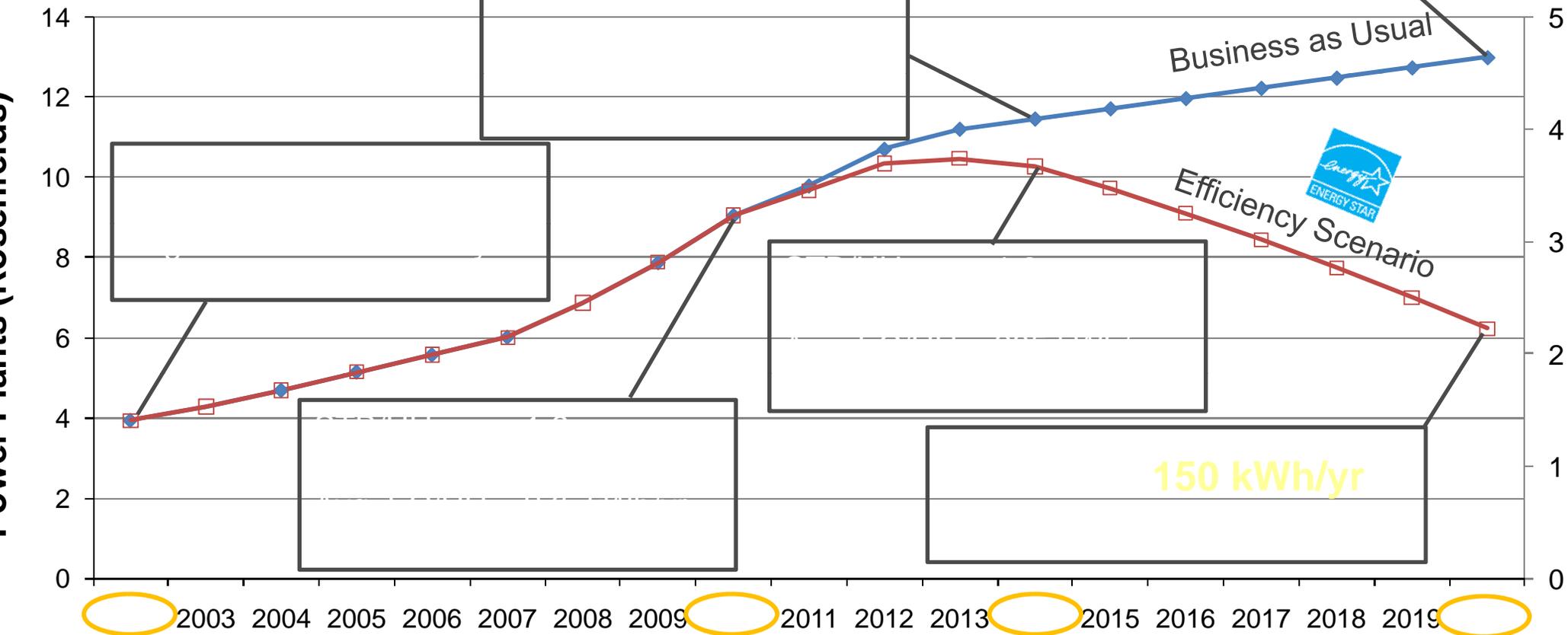


Source: Preliminary Results of 2010 NRDC Study

# Efficiency Scenario



US Pay TV STB Total Energy Consumption Scenarios



Business as Usual maps preliminary projections from NRDC 2010 forward. The Efficiency Scenario plots ENERGY STAR V3.0 adoption from 25% in 2011 to 100% in 2014 followed by a linear reduction in Energy Consumption per Subscription Household (EC/HH) to 150 kWh/yr in 2020. UEC = Unit Energy Consumption.



# Today's cable multi-room is better than multi-DVR but won't get us to 150 kWh/yr

## Example Cable Multi-room Configuration for 3 TV Home

	On			Sleep			Deep Sleep			TEC kWh/yr
	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	
HD-DVR	29	9	95	28	15	153				249
HD-Client	20	3	22	19	21	146				168
HD-Client	20	3	22	19	21	146				168
<b>Total</b>			<b>139</b>			<b>445</b>				<b>584</b>



# Today's IPTV is relatively efficient



## AT&T U-verse 3 TV Multi-room



	On			Sleep			Deep Sleep			TEC
	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	kWh/yr
HD-DVR	19	9	61	12	15	65				126
HD-Client	10	3	11	9	21	69				80
HD-Client	10	3	11	9	21	69				80
<b>Total</b>			<b>84</b>			<b>203</b>				<b>287</b>

## Dutch Tele2, 3 TV Multi-room

	On			Sleep			Deep Sleep			TEC
	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	kWh/yr
HD-DVR	10	9	31	9	15	47				78
HD-Client	8	3	9	7	21	54				62
HD-Client	8	3	9	7	21	54				62
<b>Total</b>			<b>49</b>			<b>154</b>				<b>203</b>



# Other savings opportunities



## Low power thin clients

	On			Sleep			Deep Sleep			TEC
	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	kWh/yr
HD-DVR	23	9	76	23	15	126				202
HD-Client	6	3	7	3	21	23				30
HD-Client	6	3	7	3	21	23				30
<b>Total</b>			<b>89</b>			<b>172</b>				<b>261</b>

## DVR deep sleep and TVs as clients

	On			Sleep			Deep Sleep			TEC
	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	Watts	Hours	kWh/yr	kWh/yr
HD-DVR	23	9	76	14	7	35	1	8	3	114
TV as client										
TV as client										
<b>Total</b>			<b>76</b>			<b>35</b>			<b>3</b>	<b>114</b>



# Sky Broadcasting Best in Class Worldwide



- Power levels
  - 22.5W On
  - 13.2W Sleep
  - 0.65W Deep Sleep
- Auto power down at 11pm to 0.65W
  - Wakes automatically to record programs
  - Wakes every ½ hour to check for new program recording requests entered by subscribers using smart phones
  - 90 second wake time when user hits power button
- Sky installers program Sky remote to control both TV and STB



# \$99 Apple TV

- Estimated power level of 3W



# Service Provider Strengths Relative to Incentive Programs



1. Marketing power
2. Ability to track device inventory, configuration and possibly power states
3. Access to homes



# Invitation to collaborate



US Pay TV STB Total Energy Consumption Scenarios



I will schedule an Oct or Nov

STB program design webinar

Please contact me if you would like to participate



# Contact Information



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